

# The Heart Matters: Women Veterans, Cardiovascular Disease, and PTSD

*If I can stop one heart from breaking, I shall not live in vain.*  
Emily Dickinson<sup>1</sup>



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*Fed Pract.* 2025;42(2).  
Published online February 14.  
doi:10.12788/fp.0557

**T**he celebration of Valentine's Day has made the association of hearts with the month of February almost automatic. There is, though, another commemoration of hearts in the second month of the year with special significance for federal practice: American Heart Month. President Lyndon B. Johnson proclaimed February as American Heart Month in 1964 to raise awareness of the enormous human and economic cost of cardiovascular diseases (CVD) that impact many Americans in their prime.

The Centers for Disease Control and Prevention estimates that 1 in 5 deaths in the United States is due to CVD, which includes coronary artery disease, heart failure, heart attack, and stroke.<sup>2</sup> American Heart Month aims to increase public attention to heart disease prevention and promote research to develop better diagnostic treatment methods for the leading cause of death in most populations.

Forty years after this proclamation, the American Heart Association launched Go Red for Women. On the first Friday of American Heart Month, Americans are encouraged to wear red to draw attention to CVD as the leading cause of death among women as well as men.<sup>2,3</sup> A 2024 report from the American Heart Institute and McKinsey Health Institute attributed at least one-third of the overall health care disparities between men and women to inequities in CVD care. These detrimental differences in the management of heart disease in women encompass both diagnostic misadventures and failure to promptly employ effective therapeutics. CVD morbidity and mortality data for Black women are even higher due to multiple and overlapping social determinants of health.<sup>4</sup>

Higher rates of hypertension, hyperlipidemia, and smoking in women veterans compared with civilians have resulted in an increased risk of heart disease and a 26% higher rate of CVD-related mortality. One in

10 women enrolled in US Department of Veterans Affairs (VA) health care has CVD. Research shows that these women are less likely compared to male veterans to receive counseling about exercise or to be prescribed medications such as statins, even when evidence-based treatment guidelines are followed. The increased rates of heart disease and its complications in women veterans are in part due to risk factors related to military service such as posttraumatic stress disorder (PTSD) and depression, which exceed the rates of nonveteran women.<sup>5</sup>

The heart has a long association with psychological health. For millennia, philosophers and physicians alike believed the heart was the center of the self and the locus of sentience. Even William Harvey, whose discovery of the circulation of blood earned him the title of the father of cardiology, viewed the heart as the life force.<sup>6</sup> The heart has been explicitly linked to American military trauma since the Civil War era diagnosis of Soldier's Heart. More recently, mutual genetic vulnerabilities to PTSD and CVD have been posited.<sup>7</sup> Indeed, research with male combat veterans helped establish the association.

Until recently, there has been a dearth of research to establish the same connection between CVD and PTSD in women veterans, who have elevated rates of PTSD in part due to higher rates of homelessness and military sexual trauma.<sup>5</sup> Due in large part to the work of a group of VA and US Department of Defense (DoD) researchers, this is starting to change. A research group conducted a retrospective longitudinal study using electronic health record data from nearly 400,000 women veterans to determine the propensity scores of associations between a PTSD diagnosis and the incidence of heart disease over nearly 5 years. The hazard ratio (HR) for the incidence of CVD in women with trauma was 1.44 (compared with

matched controls) and even higher in younger women (HR, 1.72).<sup>8</sup> Researchers also compared CVD mortality in civilian and veteran women and found a concerning trend: not only were mortality rates higher in veterans, but they also did not benefit from an overall improved trend in deaths from heart disease over the past 20 years.<sup>9</sup>

Two years later, the same VA/DoD research group conducted additional analysis on the dataset used in the prior study to examine potential mechanisms underlying the epidemiological link between CVD and PTSD in women veterans. Women with and without PTSD were matched on age and traditional CVD risk factor parameters. The findings demonstrated an association of PTSD with higher risks of diabetes, hypertension, hyperlipidemia, and smoking. However, these traditional risk factors only accounted for one-fourth of the total association. About 34% of the risk was attributed to depression, anxiety, and substance use disorders, as well as obesity and neuroendocrine disorders. This leaves slightly more than half of the elevated risk of CVD unexplained.<sup>10</sup>

This research, along with other studies, have identified several mechanisms elucidating the link. Promising translational research may lead to new diagnostic techniques or improved treatment modalities for CVD in women. The most established etiology is that veterans with PTSD have a higher prevalence of multiple CVD risk factors, including smoking, substance use disorders, obesity, poor diet, sleep disorders, depression, and inactivity. There is also increased recognition that PTSD involves neuroendocrine dysfunction in the stress-response that triggers a cascade of metabolic responses (eg, chronic inflammation) that contribute to the onset and progression of heart disease.<sup>11</sup>

This burgeoning scientific work on CVD and its close association with PTSD and the role of both traditional and nontraditional risk factors can inform VA efforts to educate frontline VA and DoD clinicians, leading to better care for women veterans. Whether a practitioner provides primary, specialty, or mental health care, this new knowledge can

inform efforts to optimize prevention and treatment for both PTSD and CVD. For example, the VA/DoD researchers recommend prescribing antidepressants that are less likely to cause or worsen hypertension and to employ psychotherapies known to reduce the harmful CVD effects of increased stress acting through the hypothalamic-pituitary axis. These studies empower VA clinicians to realize Emily Dickinson's aspiration to prevent trauma and reduce damage to both the psyche and the soma. The health of every veteran's heart and mind matters, as does every effort of federal practitioners to protect and heal it.

### Disclaimer

The opinions expressed herein are those of the author and do not necessarily reflect those of *Federal Practitioner*, Frontline Medical Communications Inc., the US Government, or any of its agencies.

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